



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/562,446	12/27/2005	Hideaki Matsuhashi	2005_1875A	3477
52349 7590 07/28/2008 WENDEROTH, LIND & PONACK L.L.P. 2033 K. STREET, NW SUITE 800 WASHINGTON, DC 20006				
EXAMINER				
DAVIS, MARY ALICE				
ART UNIT		PAPER NUMBER		
3748				
MAIL DATE		DELIVERY MODE		
07/28/2008		PAPER		

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/562,446

Applicant(s)

MATSUHASHI, HIDEAKI

Examiner

MARY A. DAVIS

Art Unit

3748

Period for Reply -- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 30 June 2008.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 14, 16-21, 28 and 30-35 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 14, 16-21, 28 and 30-35 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 27 December 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

Claim Rejections - 35 USC § 112

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claims 14, 16-21, 28, and 30-35 contains the trademark/trade name "Hale".

Where a trademark or trade name is used in a claim as a limitation to identify or describe a particular material or product, the claim does not comply with the requirements of 35 U.S.C. 112, second paragraph. See *Ex parte Simpson*, 218 USPQ 1020 (Bd. App. 1982). The claim scope is uncertain since the trademark or trade name cannot be used properly to identify any particular material or product. A trademark or trade name is used to identify a source of goods, and not the goods themselves. Thus, a trademark or trade name does not identify or describe the goods associated with the trademark or trade name. In the present case, the trademark/trade name is used to identify/describe a type of machining and, accordingly, the identification/description is indefinite. For examination, the descriptor of "Hale" is given no weight.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 14-18, 22-24, and 28-32 are rejected under 35 U.S.C. 103(a) as being unpatentable over BISHOP (World Intellectual Organization Publication Number WO 89/08522).

Regarding claim 14, BISHOP discloses:

- A method for machining a scroll wrap, comprising:
- forming a stationary scroll having an end plate and a scroll wrap extending from said end plate thereof (see Figures 1-2, Page 2, lines 12 - 14), said scroll wrap of said stationary scroll having a side face (see Figures 1-2 which show that the stationary scroll has a side face) (see Page 1, lines 13 - 17),
- forming a slewing scroll having an end plate and a scroll wrap extending from said end plate thereof (see Figures 3-4, Page 2, lines 12 - 14), said scroll wrap of said slewing scroll having a side face (see Figures 3-4 which show that the slewing scroll has a side face) (see Page 1, lines 13 - 17),
- wherein said side face of said stationary scroll wrap and said side face of said slewing scroll wrap are configured to slide with respect to each other in use (Page 1, lines 18 - 34); and
- Hale-machining said side face of one of said stationary scroll wrap and said slewing scroll wrap by moving along a longitudinal direction of said one of said stationary scroll wrap and said slewing scroll wrap a non-rotational blade (see Figures 1, 5-7, and 12 - 17; Page 4, line 25 - Page 5, line 24, Page 11, line 27+) such that machined at one time is a portion of said side face of said one of said stationary scroll wrap and said slewing scroll wrap (see Figure 14, Page 4,

line 25 – Page 5, line 24, which shows that machined at one time is a portion of the side face).

Regarding claims 15 and 29, BISHOP discloses:

- the non- rotational blade has a length greater than the height of said one of said stationary scroll wrap and said slewing scroll wrap (see Figure 7).

Regarding claims 16, 22, and 30, BISHOP discloses:

- cutting-machining by end milling both said side face of said one of said stationary scroll wrap and said slewing scroll wrap and a surface of said end plate from which said one of said stationary scroll wrap and said slewing scroll wrap extends (see Figures 9 – 11 and 15; Page 11, lines 17 – 26 and Page 15, lines 27 - 33),
- wherein both said Hale-machining and said cutting-machining are performed while the one of said stationary scroll and said slewing scroll having said one of said stationary scroll wrap and said slewing wrap is fixed in a chuck (see Figure 15, Page 11, line 32 – Page 16, line 25).

Regarding claims 17, 23, and 31, BISHOP discloses:

- machining a surface of said end plate from which said one of said stationary scroll wrap and said slewing scroll wrap extends with the same non-rotational blade used for said Hale-machining of said side face of said one of said stationary scroll wrap and said slewing scroll wrap (see Figure 7 which shows that the end plate is also machined with the same non-rotational blade used for Hale-machining the side faces); and

- performing a finish cutting with a different non-rotational blade than that used for said Hale-machining of said side face of said one of said stationary scroll wrap and said slewing scroll wrap (see Figures 9 – 11 and 15; Page 11, lines 17 – Page 16, line 25);
- wherein said Hale-machining, said machining, and said finish cutting are performed while the one of said stationary scroll and said slewing scroll having said one of said stationary scroll wrap and said slewing scroll wrap is fixed in a chuck (see Figure 15; Page 11, lines 17 – Page 16, line 25).

Regarding claims 18, 24, and 32, BISHOP discloses:

- simultaneously machining a surface of said end plate from which said one of said stationary scroll wrap and said slewing scroll wrap extends with the same non-rotational blade used for said Hale-machining of said side face of said one of said stationary scroll wrap and said slewing scroll wrap (see Figure 7 which shows that the end plate is simultaneously being machined using the same non-rotational blade (11 or 12) used for Hale-machining the side faces).

Regarding claim 28, BISHOP discloses:

- Hale-machining said side face of said one of said stationary scroll wrap and said slewing scroll wrap by moving said non-rotational blade along the longitudinal direction of said one of said stationary scroll wrap and said slewing scroll wrap results in said side face of said one of said stationary scroll wrap and said slewing scroll wrap being machined by said non-rotational blade (Page 4, line 30 – Page 5, line 24).

BISHOP further discloses that "the tool is engaged with the wrap for a small depth compared to the depth engagement when the entire surface of the wrap (say 30 mm deep) is machined at once in the case of end-milling," (Page 5, line 33 – Page 6, line 6) and that multiple longitudinal passes are made with the non-rotational blade (see Page 4, line 30 – Page 5, line 24). BISHOP discloses multiple passes of the non-rotational tool, due to a single pass produces great forces on the scroll wrap, which deflects the scroll wrap during machining. BISHOP also discloses that two tools cutting at one time reduce the deflecting forces substantially to zero (Page 6, lines 7-14).

However, BISHOP fails to disclose machined at one time is a portion of said side face, of said one of said stationary scroll wrap and said slewing scroll wrap, extending substantially for a height of said one of said stationary scroll wrap and said slewing scroll wrap so that either one of the stationary scroll wrap or the slewing scroll wrap side faces are machined in their entirety with one pass, and a cutting edge of the non-rotational blade has a length greater than the height of said one of said stationary scroll wrap and said slewing scroll wrap.

BISHOP discloses end milling is performed in one pass (see Page 5, line 33 – Page 6, line 6) with the cutting tool greater in length than the height of the wrap (see Figure 9). The applicant has not disclosed why their machining process would produce different results than the prior art, BISHOP, when machining at one time the same scroll wrap (i.e. same material, same thickness, etc.) a portion of the scroll wrap for the entire height of the scroll wrap. What is different from the applicant's tool that resolves the issue of deflection while machining? Furthermore, BISHOP discloses that two tools

Art Unit: 3748

cutting at one time reduce the deflecting forces substantially to zero (Page 6, lines 7-14), and therefore, it would be obvious to one of ordinary skill in the art to machine the entire height of the stationary and slewing scroll wrap at one time by using two cutting tools in the machining of the scroll wraps of BISHOP, in order to reduce the machining time and improve the tolerances on the machined scroll wrap by reducing the deflecting stresses caused by machining.

It would have been obvious to a person having ordinary skill in the art at the time of the invention was made to have machined at one time the scroll wrap extending the height of the wrap in a longitudinal direction with the non-rotational tool in the scroll machining of BISHOP, in order to reduce the machining time and reduce the number of cut lines in the scroll wrap. Furthermore, it would be obvious to a person having ordinary skill in the art at the time of the invention was made to have the cutting edge of the non-rotational blade with a greater length than the height of the wrap of either the stationary or slewing scroll of BISHOP, since when machining the surface in one pass by a non-rotational tool, the tool engaging the part needs to be taller than the part it is machining in order to machine the entire height of the scroll wrap in one pass (see Figure 9). Applying the known technique of machining in one pass a scroll wrap to a machine that utilizes a non-rotational tool, would yield predictable results.

5. *Claims 19, 25, and 33 are rejected under 35 U.S.C. 103(a) as being unpatentable over BISHOP.*

Art Unit: 3748

BISHOP discloses the claimed invention, however, fails to disclose machining a surface of the end plate with a different non-rotational blade than the Hale-machining blade, which was used for machining the side faces of the stationary scroll wrap.

It is the examiner's position that having a different non-rotational blade to machine the end-plate from the Hale-machining blade used for the side faces would have been obvious to one having ordinary skill in the art. More specifically, one having ordinary skill in the art would have generated a separate blade in order to machine the end-face in what ever shape or configuration desired. Utilization of two blades to perform the same machining as one blade involves only routine skill in the art.

6. *Claims 20, 26, and 34 are rejected under 35 U.S.C. 103(a) as being unpatentable over BISHOP.*

Regarding claims 20, 26, and 34, BISHOP discloses:

- said side face of said one of said stationary scroll wrap and said slewing scroll wrap includes an inner side face and an outer side face (see Figures 1-4 which show the inner and outer side faces of the scrolls).

However, he does not disclose the Hale-machining is performed on said inner side face and said outer side face in any one of an order from said inner side face to said outer side face and an order from said outer side face to said inner side face.

BISHOP discloses using two separate non-rotational blades to machine the inner and outer side faces of the scroll wraps simultaneously (see Figures 5-7), as well as, utilizing one Hale-machining blade to machine the inner and outer wraps (see Figures 12-14). It is the examiner's position that the order of machining comprising of

machining the inner than the outer wraps or the outer than the inner wraps would have been obvious to one having ordinary skill in the art when machining the scroll wraps using only one Hale machining blade. Generation of the order of machining when utilizing one Hale-machining blade involves only routine skill in the art.

7. Claims 21, 27, and 35 are rejected under 35 U.S.C. 103(a) as being unpatentable over BISHOP in view of NIWA ET AL (U.S. Patent Number 4,615,091).

BISHOP discloses the claimed invention as discussed above in claim 14, however, fails to disclose the resulting surface roughness of said side face of said one of said stationary scroll wrap and said slewing scroll wrap measures one micrometer at most.

The resulting surface roughness being one micrometer at most is a design resultant variable. NIWA ET AL discloses a cutting edge that depending on the amount of indexing would result in the desired size and finish (Column 1, lines 44 – 65).

It would have been obvious to a person having ordinary skill in the art at the time of the invention was made to have generated a surface roughness of less than one micrometer or any desired roughness, by changing the number of passes in the Hale-machining process of BISHOP.

Double Patenting

8. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir.

Art Unit: 3748

1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

9. Claims 14, 16-21, 28, and 30-35 are each rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claim 6 of U.S. Patent No. 7,293,945 B2. Although the conflicting claims are not identical, they are not patentably distinct from each other because the claim limitations of claim 6/2/1 in Patent No. 7,293,945 B2 discloses a non-rotational tool utilized to machine the surface of the side and end of a component. However, Patent 7,293,945 B2 fails to disclose utilizing the non-rotational tool for machining a scroll wrap. BISHOP discloses using a non-rotational tool to machine a scroll wrap (see discussion in 103 rejections above).

It would have been obvious to a person having ordinary skill in the art at the time of the invention was made to have utilized the non-rotational tool of patent 7,293,945 B2 in the machine of BISHOP, since a simple substitution of the non-rotational tool of BISHOP for the non-rotational tool of Patent 7,293,945 B2 requires only routine skill in the art.

Response to Arguments

10. Applicant's arguments filed June 30, 2008 have been fully considered but they are not persuasive. Applicant argues that BISHOP discloses multiple passes with the

Art Unit: 3748

non-rotational tool and not machining at one time a portion of either one of the stationary or slewing scroll wrap for the height of the wrap and a cutting edge having a length greater than the height of the wrap. BISHOP discloses end milling being performed at one time for the height of the stationary and slewing scroll wrap. It would be obvious to try to machine the stationary and slewing scroll wrap at one time over the entire height of the scroll wrap with the non-rotational tool, since it would produce predictable results. BISHOP discloses multiple passes of the non-rotational tool, due to a single pass produces great forces on the scroll wrap, which deflects the scroll wrap during machining. The applicant has not disclosed why their machining process would produce different results than the prior art, BISHOP, when machining at one time the same scroll wrap (i.e. same material, same thickness, etc.) a portion of the scroll wrap for the entire height of the scroll wrap. What is different from the applicant's tool that resolves the issue of deflection while machining? Furthermore, BISHOP discloses that two tools cutting at one time reduce the deflecting forces substantially to zero (Page 6, lines 7-14), and therefore, it would be obvious to one of ordinary skill in the art to machine the entire height of the stationary and slewing scroll wrap at one time by using two cutting tools in the machining of the scroll wraps of BISHOP, in order to reduce the machining time and improve the tolerances on the machined scroll wrap. Furthermore, the cutting edge of the non-rotational tool does not extend higher than the height of the scroll wrap, as shown by 13 and 14 of BISHOP, however, it would be obvious to one of ordinary skill to have the cutting edge of the non-rotational tool being greater than the height of the scroll, in order to machine the scroll wrap in one pass.

Communication

Any inquiry concerning this communication or earlier communications from the examiner should be directed to MARY A. DAVIS whose telephone number is (571)272-9965. The examiner can normally be reached on Monday thru Thursday; 6:30 am - 5:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Thomas Denion can be reached on (571) 272-4859. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Thomas E. Denion/
Supervisory Patent Examiner, Art Unit 3748

/Mary A Davis/
Examiner, Art Unit 3748